

AMENDMENTS TO THE CLAIMS

The following claim listing includes the present status of all claims submitted in this application, including amendments submitted with this paper. By this paper, claims 1 and 2 have been amended.

LISTING OF CLAIMS

1 (currently amended). An extrusion die for use in producing perforated stick-type propellant comprising:

- (a) a die blank having an inner wall defining a generally round central passage therethrough, said passage having an unrestricted tapered entry;
- (b) an open lattice webbing structure beyond said tapered entry in and along said central passage for passing extruding propellant, said webbing structure including a center and a series of radial struts connecting the center with said inner wall of said die thereby ~~providing struts in and~~ spanning said central die passage; and
- (c) an array of solid die pins carried by said struts of said webbing structure arranged in one or more generally regular circular patterns for imparting a pattern of perforations in material forced through said central passage, each pin having a fixed end ~~attached~~ fixed to said lattice webbing structure and a free end

extending parallel to said passage and beyond said webbing structure.

2(currently amended). An extrusion die as in claim 1 wherein said die is formed as a unitary structure from a single die blank.

3(previously presented). An extrusion die as in claim 1 wherein said central passage is tapered slightly in the vicinity of said lattice webbing structure.

4(previously presented). An extrusion die as in claim 1 wherein said open lattice structure is machined in said central passage.

5(previously presented). An extrusion die as in claim 2 wherein said open lattice structure is machined in said central passage.

6(previously presented). An extrusion die as in claim 1 wherein at least some of the pins are formed integrally with said open lattice webbing structure.

7(previously presented). An extrusion die as in claim 4 wherein at least some of the pins are formed integrally with said open lattice webbing structure.

8(withdrawn). An extrusion die as in claim 1 wherein one or more of said pins is separately manufactured and fixed to said lattice webbing structure.

9(withdrawn). An extrusion die as in claim 8 wherein separately manufactured pins are press fit into openings provided

in said lattice webbing structure.

10(previously presented). An extrusion die as in claim 1 wherein one or more of said pins is of a non-round cross section.

11(withdrawn). An extrusion die as in claim 1 wherein the number of pins arranged in said pattern is selected from 7, 19 and 37 and wherein said pattern includes a central pin.

12(withdrawn). An extrusion die as in claim 11 wherein the number of pins is 7.

13(previously presented). An extrusion die as in claim 4 wherein said machining includes electron discharge machining.

14(previously presented). An extrusion die as in claim 5 wherein said machining includes electron discharge machining.

15(previously presented). An extrusion die as in claim 1 wherein the area of the open lattice webbing structure is tapered slightly to enhance reforming of extruded material into sticks.

16(withdrawn). A method of extruding perforated stick-type propellant including the step of:

extruding propellant through the die blank of claim 1, said propellant passing through said die blank maintaining a direction substantially parallel to said pins along the length thereof.